MasonIP for DVD Verification & Playback

by Mark Bain - 2/26/07

Since it's introduction, the MasonIP has created a large number of questions about what it is and how it works. This paper will try to answer some of these questions and will detail out how the MasonIP fits into a post production or authoring environment.

What is the MasonIP?

MasonIP is special type of DVD player. Think of MasonIP as a stand alone DVD player without a DVD drive. In place of the DVD drive, put in a network connection, and you have a good description of MasonIP.

So without a DVD drive, how does MasonIP play a DVD?

Since MasonIP has a network connection, MasonIP looks at servers on the network and locates and plays any valid DVD structure on any available server. By using the MasonIP remote control, you can navigate to DVD's on the servers and play them exactly like they were burned DVD disks inside a DVD player.

A Different Approach to DVD verification

When you are authoring a DVD, let's say with DVD Studio Pro, many times during the process you need to verify your menu's and overlays and other graphical or video bits. Up to this point, there were only two ways to verify your work:

1) you can use the DVD Studio Pro software based DVD player simulator.
2) you can burn a DVD-R and put that in a stand alone DVD player and see how it plays.

The problem with #1 is that as good as DVDSP's simulator works, you are still using a computer to playback the images. The screen is small and progressive scan only. The color gamut is not the same as video. And you can't output it to a reference video monitor for accurate representation.

The problem with #2 is the time involved in burning a check DVD. You just have to sit and wait for the burn to complete. Then you have to manually put it into the stand alone DVD player and test. Another problem is the waste of tossing burned DVD-R disks for simple tests. On some large projects, this can be substantial.

MasonIP solves both problems with a new approach to DVD testing. Instead of trying to cram a DVD simulator into a computer, we put a computer ***inside*** a stand alone DVD player. This gives us the best of both worlds. We get full DVD playback and output because we ***are*** a stand alone reference DVD player. We have full DVD functions and a complete range of DVD video outputs, including additional broadcast ready outputs. And because we have a fully embedded computer inside, we have all the networking and computer functions available to us as well. This allows MasonIP to connect, via a network, directly to computers and servers for DVD testing. And MasonIP is not tied to a single server or computer either. By just navigating to other computers or servers with the remote control, you can test all the DVD images available on the network. This lets you quickly test different versions for comparisons or to see how your project is moving along. Or you can easily just pop up different versions for clients to compare.

How does MasonIP know where to look for the DVD's?

When you configure MasonIP, you enter in a list of servers that have DVD material on them. Not only servers, but even regular computer systems, like your authoring computer, can be listed here. Then with the MasonIP remote control, you can easily navigate through the servers and file lists to find the DVD's you want to test.

How difficult is it to setup all the network settings for MasonIP?

MasonIP uses Ethernet for it's network connection and it can work in a variety of environments. MasonIP supports Static IP numbers along with DHCP. The network settings are all programmed by the remote control. We include easy networking instructions, and anyone that has configured a router or other network device will find the MasonIP setup a breeze.

Better to teach the Video people new tricks

MasonIP is a bridge between the Video/DVD world and the Networking IT world. We here at Wired have been deeply involved in the video compression and DVD authoring world since 1991... Before DVD's were even created. We have seen many changes, but nothing is as significant as the introduction of data networking to the business environment. Networking is not just something to browse the Internet with. Data networking is the most fundamental shift that has occurred in our lifetime.

There are two choices to bridge the gap between Video/DVD people and network IT people. You can teach the IT people video specifics, or you can teach the video people IT knowledge. We prefer the latter. We think video people are pretty smart and

can easily learn data networking. So wake up video people, you are going to learn all about TCP/IP and Ethernet.

Is a network connection fast enough to play DVD's over? In other words, can you really play DVD's over a network connection?

Absolutely. Almost all networks today are Fast Ethernet, or 100baseT, networks. These networks are much faster than that required to play a DVD over. As you know, DVD's are around 10mb/s maximum. Fast Ethernet is 100mb/s max. But even on a busy network, getting 10mb/s throughput should not be a problem.

What if I don't have a server that stores our DVD projects.

Well actually the computer you used to author the DVD probably has built-in file sharing as a standard function. And that's all you need to allow MasonIP to see your DVD project files. In other words, by turning on your authoring computer's file sharing function, MasonIP can see and play the saved DVD's on your computer's hard drive. That way no separate data server would be required.

MasonIP plays your DVD's anywhere

If you already have central data servers to store your DVD projects onto, then with MasonIP you can just navigate through the server files with the hand-held remote. It's that easy. Even multiple servers can be listed on MasonIP and again with the remote you can just surf to the server you want and navigate through to the file you want.

If you are like most small shops, you probably keep your DVD projects on the local hard drive or some firewire drives. You can still easily use MasonIP to playback those files as well. By turning on file sharing on your computer, MasonIP can see the drives and easily navigate to the desired location for playback.

Of course one thing that MasonIP will definitely do, is it will push you to get all your DVD projects organized onto centralized locations. Actually, MasonIP doesn't care where your files are located, but once you start searching for all your DVD projects, you will have this burning desire to put them all onto easily backed up drives in some central location.

During the MasonIP development, we put in several terabyte servers (the Wired TeraSpool) for DVD storage and it worked out beautifully. Now all our DVD projects are on one server, easily accessed by everyone in the company, and easily backed up. And it free'd up massive amounts of hard disk room on our local computer systems. Now all our video and DVD projects are stored directly on the server and not on our local hard drives.

How do you configure the MasonIP?

MasonIP has a built-in web server for configurations. You just point any browser on any computer system to the IP number of the MasonIP box, and up comes a configuration page. There you can program a large variety of settings, including your list of servers, and your DVD player output monitor settings.

What connections are on MasonIP?

MasonIP has the full range of stand alone DVD player outputs, along with some additional broadcast ready outputs. Composite BNC, S-Video, Component BNC's, DVI-D, are the video outputs. Analog RCA's, S/P DIF RCA, Toslink optical, AES/EBU, are the audio outputs. And a Fast Ethernet jack is your network connection.

MasonIP fits right in

Because MasonIP is essentially a stand alone DVD player, it connects up just like any other DVD player. Use the video outputs to drive your reference video monitor or other video equipment. Connect the audio outputs to your amp or Dolby decoder. The only additional connectors you will find are the Ethernet connector and USB ports.

Almost all the output connectors are locking type, essential for the broadcast environment. MasonIP comes in a 19" rack mountable all metal chassis, with an IEC AC power input connector located on the back. MasonIP is designed for continuous 24/7 operation, with no external power bricks or wall supplies used.

Learn your networking

Being video people, the biggest challenge in this new environment is going to be to learn how to connect up networking equipment. If your company has an IT department, they will find MasonIP easy to install. If ***you*** are your companies IT department, then we have easy step by step instructions on how to get it installed and running.

In addition, Wired will be releasing several networking white papers that should make your installation a lot easier to complete. But if you have already installed something like a wireless router on your network, then you have essentially done exactly what it takes to install MasonIP.

Typical setups for MasonIP

Figure 1 details out a typical DVD authoring setup. Once you are ready to test an authored DVD image on the hard drive, either on an external server or on the computer's internal drive, you just pick up the MasonIP wireless remote, navigate to the DVD image, and hit Play. The DVD starts playing just like a burned DVD check disk. And with the DVD remote, you can test all the remote functions for your DVD, like navigation and menu controls.

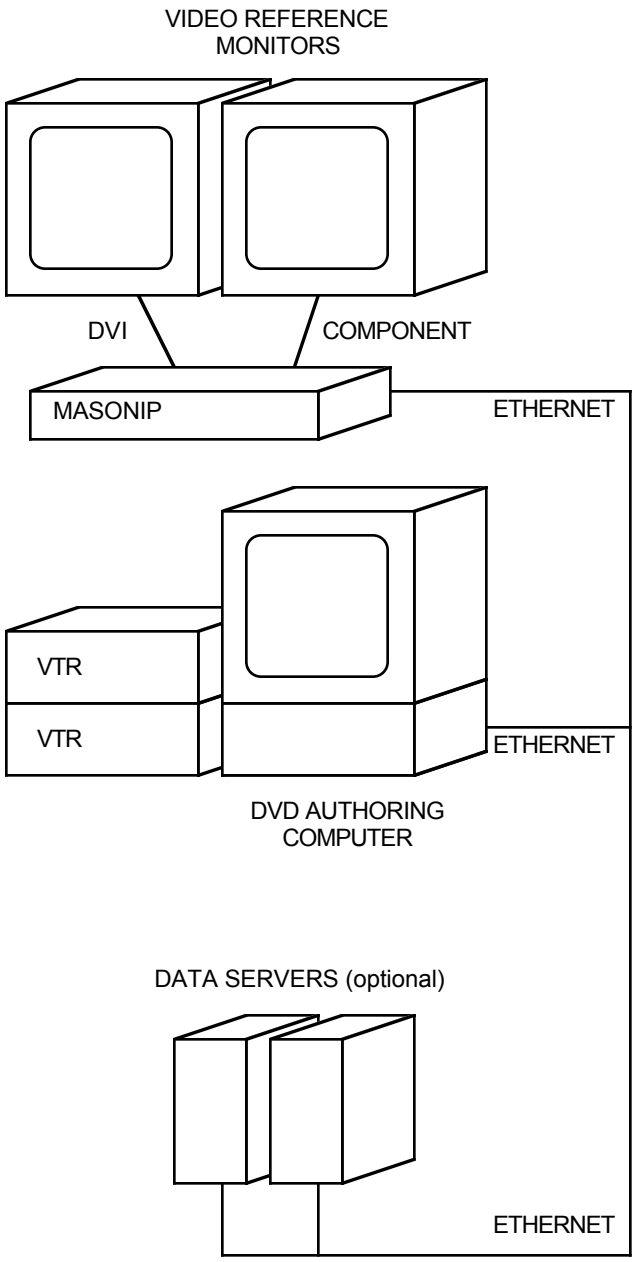
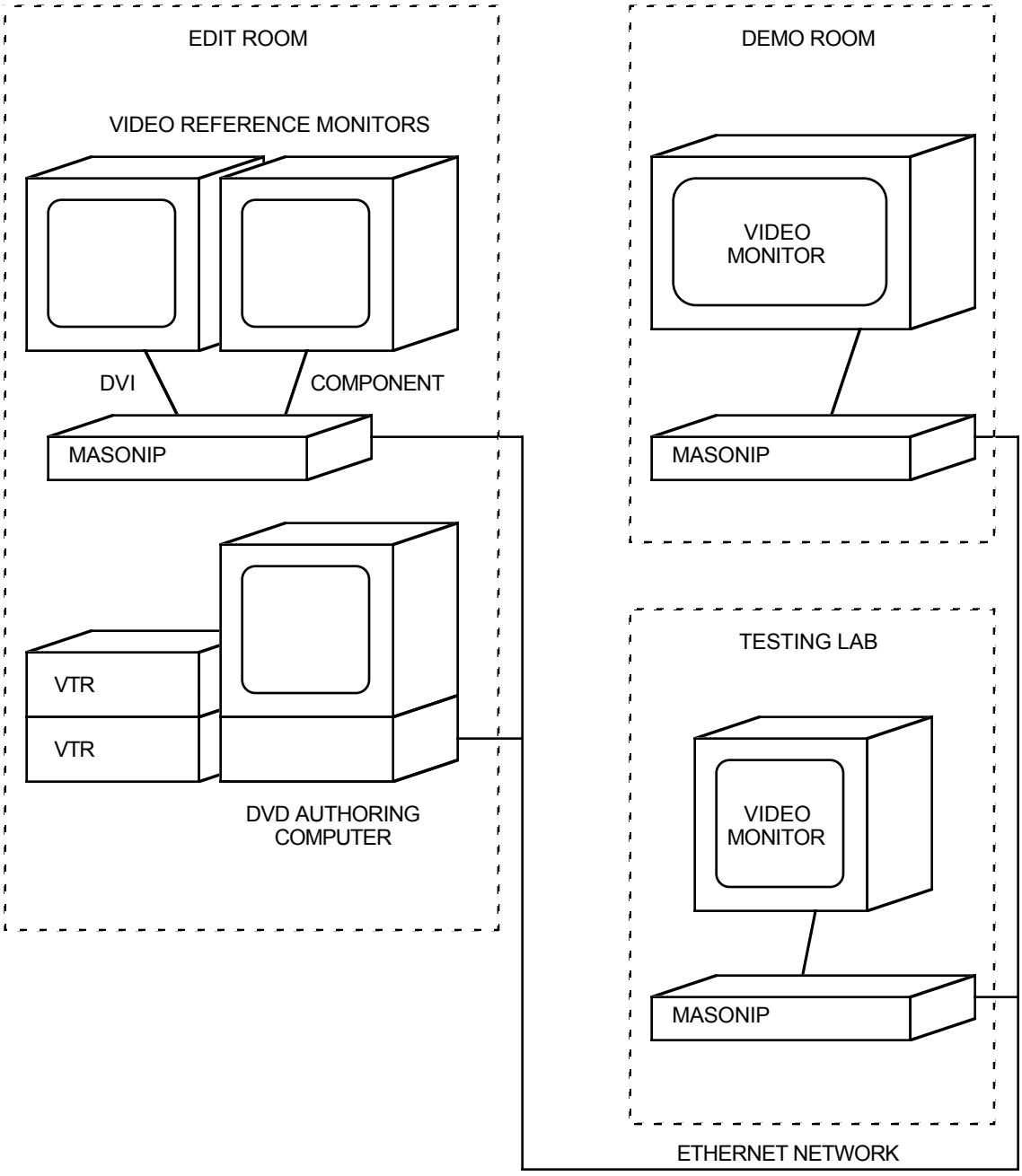


Figure 1 - This is a typical DVD workstation setup with MasonIP installed. The data servers are optional. The DVD video comes out of MasonIP onto the video reference monitors and you can use the wireless remote control to test all DVD functions, just like a stand alone DVD player.

Now notice that the only connection between the MasonIP and the DVD authoring computer is the network cable. That means you can have the MasonIP located anywhere on the company network. Even in a DVD demo room or test lab. You can even add additional MasonIP's and have them all access the same DVD images from different locations. All you need is a network connection.



MasonIP opens up new possibilities for DVD testing and verification. By utlizing the power of the data network, it bridges the gap between the Video world and the networking world. No longer do you need to shuttle around test DVD disks for everyone on the project. Just have them navigate directly to your project folder and they can play your DVD's on their own system. No disks. No burning. No waiting.

MASONIP DETAILED ELECTRONIC SPECIFICATIONS

• All Mason products are designed for continuous 24/7 use.

• 19” 1U rack mountable all metal enclosure.

• No switching power supplies used anywhere, to prevent conducted and induced noise and interference.

• No external or wall mounted power supplies. Direct AC power input with IEC cord.

• Ten separate linear power supplies used throughout for the ultimate in clean signals. All digital and analog sections powered separately.

• All analog signal paths contain no noisy semiconductor switches. Only high-frequency, high-isolation relays used to route analog signal paths.

• All analog discrete parts are through-hole high-precision components.

• All analog power cleaned up with precision tantalumn capacitors.

• Component video outputs are buffered with 1GHz video drivers, for clean precise video signals, even over long cable runs.

• Analog audio output utilizes advanced ultra low-noise buffers, for clear noise-free sound output.

Back Panel:

VIDEO OUTPUT
Composite Video - BNC x 1
S-Video - MiniDin x 1
Component Video - BNC x 3
Digital Video - DVI-D

AUDIO OUTPUT
Analog Audio - RCA x 2
S/P DIF - RCA x 1
Optical - Toslink x 1
AES/EBU - XLR x 1

EXTERNAL CONNECTIONS
100Base-T (Fast Ethernet) - RJ45 x 1
USB - Type A Receptacle x 2

CONTROL
Remote IR - 3.5mm Jack x 1

POWER
AC Power - IEC x 1

Front Panel:

CONTROL
Remote IR receiver window

Format Information:

ANALOG VIDEO OUTPUT:
NTSC/PAL (480i)
480p
576p
720p50
720p60
1080i50
1080i60

DIGITAL VIDEO OUTPUT:

480p
576p
720p50
720p60
1080i50
1080i60

ANALOG AUDIO OUTPUT:
2-channel consumer line-level

DIGITAL AUDIO OUTPUT:
2-channel PCM
AC-3 Dolby Digital
DTS

NETWORK:
100Base-T
10Base-T
Support for Static IP and DHCP

FILE SHARING PROTOCOLS:
NFS
SMB
HTTP

NOTE:
All MasonIP configurations programmed via a web browser (HTTP) on port 80.